

THE REPTILIAN, AVIAN AND MAMMALIAN FAUNA OF THE MOUNT SADDLEBACK STATE FOREST, WESTERN AUSTRALIA.

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ABSTRACT

A survey of the reptilian, avian and mammalian faunas of the Mount Saddleback State Forest and surrounding areas was undertaken from 1978 to 1980. Five broad vegetation associations were recognized: jarrah forest; wendoo woodland; *Allocasuarina* dominated forest; heath; and cleared areas including farmland, streams and rivers. The survey revealed vegetation associations and fauna species characteristic of both the jarrah forest and more inland areas.

Sixteen reptile species were either observed or collected. Of these, the most common were *Morethia obscura* and *Hemiergis initialis initialis*. One species of gazetted rare fauna, the Carpet Snake (*Python spilotes*) was sighted in the Mount Saddleback State Forest. A *Pseudonejia allinis* individual collected possessed the coloration of *P. nuchalis*. The two species may hybridise in the Mount Saddleback area.

Eighty-one bird species were recorded. These included species typical of the jarrah forest (e.g. the Red-capped Parrot) and species more commonly found in drier inland areas (e.g. the Yellow-plumed Honeyeater).

Of the fourteen mammal species present, eight were native species. No exceptionally rare species were noted although the Brush-tailed Phascogele, which appears to be becoming uncommon, was recorded in the area in 1968. The Native Cat, which is on the state's rare fauna list was also recorded in the area. Trepping results from the present study and that of the Forest Department revealed large numbers of feral mice.

INTRODUCTION

The Mount Saddleback State Forest is an area of predominantly jarrah forest situated approximately 10 km south-east of Boddington, Western Australia. The total area of forest is 5619 ha and geologically it consists of hilly, upland laterite ridges rising to a peak of 575 m at Mount Saddleback. Although several streams are marked on the Forest Department map (Fig. 1) some of these have only been known to flow in exceptionally wet seasons (O.G.N. pers. obs.) and free water is not usually available.

No previous intensive vertebrate faunal survey of the area had been undertaken, and it was of interest to conduct such a survey for the following reasons:

- (1) The area is near the edge of the jarrah forest, where the forest grades into the dry sclerophyll wendoo and *Allocasuarina* (Sheoak) woodlands. Little has been published on the fauna of such areas and for this reason it was of interest to know whether both jarrah forest fauna, and fauna species representative of more inland areas occur in this transitional habitat.
- (2) The area lies within the Worsley Alumina bauxite mining lease and, for this reason, a faunal survey prior to the commencement of mining would have obvious value.

Although little biological data have been published on the area, Forest Department records show that the forest has been logged in the past and logging on a small scale and in a restricted area was carried out in 1969. The Department has undertaken a programme of controlled burning with most burns being carried out in spring.

METHOD

The vegetation of the study area was examined in June and November 1979 and February 1980, and broadly categorised into associations likely to support different faunal communities. Lists of the predominant plant species within each association were compiled.

Observations of birds were made from January 1978 until March 1980. All habitats, including farmlands, creeks, rivers and dams in areas surrounding the Saddleback State Forest were surveyed in all months. Because the study concentrated principally on the State Forest proper, surrounding localities were surveyed less intensively and, for these areas, species lists only were compiled. Within the forest itself, estimates were made of the bird species abundance and average group size. When breeding was observed, breeding times were noted for the respective species.

Mammals were observed opportunistically and mammal trapping was carried out in August 1978, June 1979 and February 1980. Pit, small Elliot (33 x 9 x 9 cm.), large Elliot (45 x 15 x 15 cm.) and cage traps were used for a total of 165

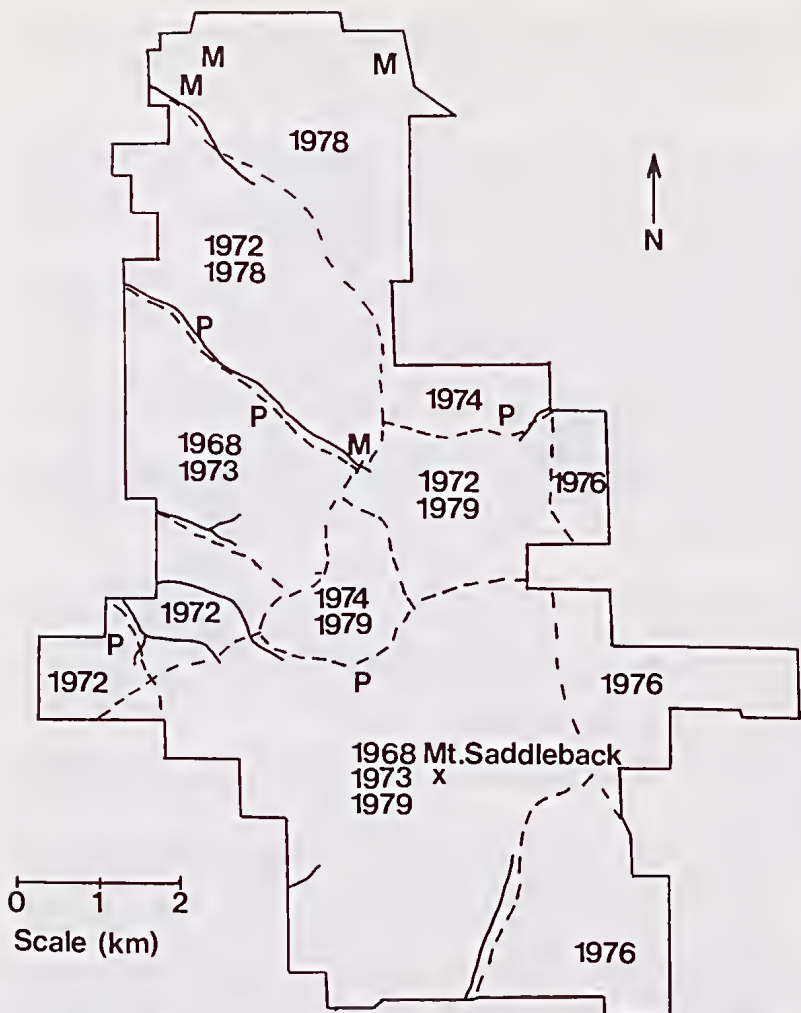


Figure 1: Location of mammal traplines (M) and reptile pit trap grids (P) in relation to roads (---) and streams (—) in the Saddleback State Forest. Dates of recent burns are also given. These were obtained from the Forests Department, Dwellingup.

trap nights in jarrah forest and heath.

Reptiles were collected by hand and pit traps while road sightings and kills were noted. Each pit trap grid consisted of 25 plastic containers, 15 cm diameter and 15 cm deep. These were left out for a total of 7 nights. Milton (1980) showed these methods to be the most effective. Collecting was undertaken in June and November 1979 and February 1980.

Spotlight surveys were carried out in February 1980.

For all faunal groups, surveys were undertaken in areas burnt at different times. These burning times ranged from spring 1973 to spring 1979.

One of us (O.G.N.) resided on a farm adjacent to the Saddleback State Forest and observations prior to 1978 of several vertebrate species are included in the results. However, these species were not recorded (or in some cases not searched for) in the course of the present study.

Several records from other sources (W.A. Museum records and unpublished Forest Department records) have been included in the results since, although the particular species may not have been recorded in the present survey, further searching may reveal their presence in the Saddleback State Forest.

Also, species recorded in the Worsley Alumina flora and fauna survey (Worsley Alumina, 1981) are noted. This survey was conducted between March 1980 and June 1981, after the present survey was completed.

RESULTS

Vegetation

A general description of the vegetation of the Mount Saddleback State Forest appears in the Worsley (bauxite mining) Environmental Review and Management Programme (1978). In the present study it was considered appropriate to divide the vegetation into associations which appeared to represent distinct vertebrate habitats and to document the most common species and those likely to have significance to fauna. Havel (1975) developed a system of categorising plant associations within the jarrah forest using 'indicator species' i.e. species indicative of a particular association. The associations of the Mount Saddleback State Forest are comparable with those of Havel's classification and the corresponding categories are noted beside the association title. Five distinct plant associations of faunal significance were recognised in the present study and these are briefly described below.

1. Jarrah Forest (Havel segments H and Z)

This was by far the most extensive association in the study area. The tree stratum consists of jarrah (*Eucalyptus marginata*) and marri (*E. calophylla*) trees which form a moderately open forest and provide a bed of leaf litter. Occasional trees of *Allocasuarina fraserana*, *Banksia grandis* and *Persoonia longifolia* form a lower tree storey. The shrub layer is quite low (rarely above 0.5 m), possibly as a result of frequent burning. The area has been subjected to controlled spring burns by the Forests Department at 5-6 year intervals.

Typical shrubs include the heath, *Styphelia tenuifolia*, the legumes *Daviesia rhombifolia* and *Acacia pulchella*, the blackboy *Xanthorrhoea preissii* and the cycad *Macrozamia reidleyi*. *Dryandra nivea* and small heaths (Family Epacridaceae) form a groundcover, especially in areas lacking a dense leaf litter. In particularly open areas, thickets of *Dryandra sessilis*, a tall shrub with flowers rich in nectar, occur.

The jarrah forest at Saddleback was logged prior to 1969 and is therefore more open than a virgin jarrah forest. Stumps and timber offcuts are a feature of the area. In recent years the area has been disturbed to a small extent by exploration and pegging of bauxite deposits. Areas affected by jarrah dieback disease do occur in Saddleback but these are small and the infection is not severe.

2. Sheoak Forest (Havel segments P and H)

This association occurs on the drier eastern slopes of the block. The trees *Allocasuarina fraserana* and *Banksia grandis* predominate, although *E. marginata* and *A. fraserana* trees are also found. The understorey of this association is very sparse with only occasional *Persoonia longifolia* trees, large shrubs such as *Xanthorrhoea preissii* and *Adenanthos cygnorum* and smaller plants including *Calytrix* sp., *Dryandra nivea* and *Patersonia occidentalis*.

3. Wandoo Woodland (Havel segments Y and M)

This association occurs in moist depressions and usually consists of a pure stand of *Eucalyptus wandoo* with a sparse lower storey of *Hakea prostrata* and a shrub layer of *Xanthorrhoea preissii*, *Macrozamia reidleyi* and *H. lissocarpa*.

4. Heath (Havel segment G)

In moist drainage depressions, a large variety of shrubs (average height 1 m) forms a dense thicket. Typical shrubs found here are *Dryandra carduaceae*, *Petrophile* sp. *Grevillea bipinnatifida*, *Styphelia tenuiflora*, *Leucopogon* sp. and *Synaphea petiolaris*. In particularly moist areas, occasional *Melaleuca preissiana* trees and *Banksia sphaerocarpa* shrubs occur.

5. Farmland

This category included pasture, crops, dams and streams. The latter are bordered by the paperbark *Melaleuca raphiophylla* and the flooded gum *Eucalyptus rudis*. Swamps occur at intervals along these streams and they contain *Typha angustifolia*, *Juncus kraussii* and introduced couch grass.

Reptiles

Sixteen reptile species have been recorded in the Mount Saddleback area. Of

these, thirteen were recorded within the State Forest itself.

As well as the reptile species noted in Table 1, an elapid snake exhibiting the characteristic size and colour pattern of *Demansia psammophis* (as illustrated in Cogger, 1979) was collected but not preserved by O.G.N. in 1968. According to Storr's (1978) revision of the genus, on the basis of distribution the species is probably *Demansia reticulata*.

A unusual *Pseudonaja* specimen (W.A. Museum number R68940) was collected as a road kill adjacent to the State Forest in February, 1980. The specimen possessed 19 mid-ventral scales (as does *P. affinis*) but the colour pattern closely resembled that of the Gwardar snake (*P. nuchalis*). It was predominantly brown but possessed a darker head and black cross bands and dorsal orange spots. L. Smith (W.A. Museum pers. comm.) suggested that *P. affinis* and *P. nuchalis* may hybridise, and this could be such a hybrid.

Table 1: Reptile species in the Mount Saddleback State forest and surrounding areas with W.A. Museum accession numbers (where submitted), comments, collection dates and localities.

<u>Families and species</u>	<u>Accession Number</u>	<u>Date Recorded</u>	<u>Locality</u>	<u>Comments</u>
CHELUIDAE				
<i>Chelodina oblonga</i>	-	1974	Hotham River	Has been caught by locals in fish traps (O.G.N. pers. obs.)
GEKKONIDAE				
<i>Phyllurus milii</i>	67961	Nov. 1979	Summit of Mount Saddleback	Under ironstone rock
<i>Diplodactylus polyophthalmus</i>	-	-	-	Worsley Alumina (1981)
<i>Phyllodactylus marmoratus</i>	-	Jul. 1972	State Forest	Collected by Forests Department
AGAMIDAE				
<i>Ctenophorus ornatus</i>	-	Mar. 1980	Boddington	Granite outcrop
<i>Pogona minor</i>	-	Nov. 1978	Mount Saddleback	In heath
SCINCIDAE				
<i>Cryptoblepharus plagiocephalus</i>	68908	Jun. 1979	Farmland and State Forest	
<i>Ctenotus labillardieri</i>	68969	Feb. 1980	State Forest	
<i>Egernia napoleonis</i>	68968	Jun. 1979	State Forest	
	67965	Nov. 1979	Summit of Mount Saddleback	Under granite rock
<i>Hemiergis initialis</i>	67962, 68909,	Nov. 1979	State Forest	Under logs and ironstone rock. Very common.
<i>initialis</i>	68910	Feb. 1980		
<i>Lerista distinguenda</i>	-	-	-	Worsley Alumina (1981)
<i>Menetia greyii</i>	-	-	-	Has been recorded at Boddington (Storr, 1976)
<i>Morethia obscura</i>	67963, 67963	Nov. 1979, Feb. 1980	State Forest	Caught in all vegetation types
<i>Tiliqua rugosa</i>	-	Nov. 1979	State Forest, farmland	
VARANIDAE				
<i>Varanus gouldii</i>	-	Nov. 1979, Feb. 1980	State Forest, farmland	Identified by G.E. Rice
PYGOPODIDAE				
<i>Aprasia pulchella</i>	-	-	-	Worsley Alumina (1981)
BOIDAE				
<i>Python spilotos</i>	-	Winter 1978	State Forest	Observed in wandoo woodland by D. Michaelson
TYPHLOPIDAE				
<i>Ramphotyphlops pinguis</i>	-	-	-	Worsley Alumina (1981)
ELAPIDAE				
<i>Denisonia gouldii</i>	-	-	-	Worsley Alumina (1981)
<i>Notechis scutatus</i>	-	-	Within 10 km of Mount Saddleback	Prefers damp situations near swamps and creeks (G. Hall, pers. comm.) (Christensen, 1973)
<i>Pseudonaja affinis</i>	-	Jan. 1979	State Forest, farmland	

Mammals

Twenty-three mammal species were recorded: seventeen native species (eleven within the State Forest) and six introduced species. Generally the area appeared poor in terms of small native species with all traplines yielding only

feral mice (*Mus musculus*). Worsley Alumina (1981) results include several species not recorded in the present study. However, for bat species, most were collected over dams outside the State Forest.

Because of the small number of trap nights (165) used in the study we acknowledge that the list of mammals may be incomplete. The Worsley Alumina (1981) results indicate that several species which we did not trap occur in the State Forest. Results for both studies are presented in the annotated list below.

As well as these, the Forests Department survey in 1972 recorded signs, but no confirmed sightings of the Numbat (*Myrmecobius fasciatus*) and the Short-nosed Bandicoot (*Isodon obesulus*) (M. Mason, pers. comm.).

ANNOTATED LIST

Western Grey Kangaroo (*Macropus fuliginosus*). Common in State Forest and surrounding areas at all times of the year. Occurs in all vegetation types.

Western Brush Wallaby (*Macropus irma*). Commonly observed in thicker vegetation of lower slopes of jarrah-marri vegetation.

Water Rat (*Hydromys chrysogaster*). Occurs in pools of streams and rivers adjacent to Mt Saddleback. Observed in Marradong Creek in 1974 (O.G.N. pers. obs.).

Brush-tailed Possum (*Trichosurus vulpecula*). Has been trapped in the roof of Boddington District High School (E. Flint pers. comm.).

Pigmy Possum (*Cercartetus concinnus*). One individual recorded by Forest Department in July 1972.

Honey Possum (*Tarsipes spencerae*). Recorded by Worsley Alumina (1981).

Brush-tailed Phascogale (*Phascogale tapoatafa*). One specimen killed by a cat and identified by O.G.N. in 1968.

Yellow-footed Antechinus (*Antechinus flavipes*). Recorded by Worsley Alumina (1981).

Native Cat (*Dasyurus geoffroii*). Observed in Jarrah forest of surrounding areas in 1977 (V. Nichols, pers. comm.).

Common Dunnart (*Sminthopsis murina*). Recorded by Worsley Alumina (1981).

Long-eared Bat (*Nyctophilus major*). Recorded by Worsley Alumina (1981).

Little Brown Bat (*Eptesicus regulus*). Recorded by Worsley Alumina (1981).

Gould's Wattle Bat (*Chalinolobus gouldii*). Recorded by Worsley Alumina (1981).

Great Pipistrelle (*Pipistrellus tasmaniensis*). Recorded by Worsley Alumina (1981).

White-striped Mastiff Bat (*Tadarida australis*). Recorded by Worsley Alumina (1981).

Little Flat Mastiff Bat (*Tadarida planiceps*). Recorded by Worsley Alumina (1981).

Echnida (*Tachyglossus aculeatus*). Observed in jarrah forest in September 1979. Appears to be uncommon.

Feral Cat (*Felis catus*). Commonly observed on surrounding farmlands and occasionally in the Saddleback State Forest.

Fox (*Vulpes vulpes*). Commonly observed in Saddleback State Forest and adjacent farmland.

Feral Pig (*Sus scrofa*). Characteristic tracks, faeces and fresh diggings observed in June 1979 in jarrah forest.

Black Rat (*Rattus rattus*). Common in surrounding farmland.

House Mouse (*Mus musculus*). Common in surrounding farmland and was trapped on all occasions in Saddleback Forest.

Rabbit (*Oryctolagus cuniculus*). Common in surrounding farmland. Frequently observed in Saddleback jarrah forest and wandoo woodland.

Birds

Eighty-one bird species were recorded in the Mount Saddleback area, and of these, sixty-one were observed within the State Forest. Results are presented

in Table 2, in the following format: months in which recorded; habitat; abundance; general information pertaining to numbers and breeding. Abundance was estimated as scarce (s), uncommon (u), moderately common (mc) or common (c).

Species not recorded within the forest are indicated with an asterisk and less information was obtained for them.

Table 2: Bird species recorded in the Mount Saddleback State Forest and surrounding areas. Nomenclature follows Storr and Johnstone (1979).

<u>Species</u>	<u>Months recorded</u>	<u>Habitat</u>	<u>Abundance</u>	<u>General Information</u>
Emu (<i>Dromaius novaehollandiae</i>)	Mar, May, Feb	Jarrah forest: farmland	MC	Adult +3 young observed in 1974.
*Black-throated grebe (<i>Podiceps novaehollandiae</i>)	Feb	Boddington Dam		One bird
*Great Cormorant (<i>Phalacrocorax carbo</i>)	Nov	Marradong Creek		One bird
*Little Pied Cormorant (<i>P. melanoleucos</i>)	Nov	Marradong Creek		One bird. Others occasionally observed.
*White-faced Heron (<i>Ardea novaehollandiae</i>)	May, Nov, Feb	Marradong Creek		Single birds
*Black Swan (<i>Cygnus atratus</i>)	Nov	Boddington Dam		Single bird
*Mountain Duck (<i>Tadorna tadornoides</i>)	Winter	Dams in Boddington area		Commonly observed In pairs
*Black Duck (<i>Anas superciliosa</i>)	Sep, Nov, Feb	Creeks and dams		Pairs or single birds
*Grey Teal (<i>A. gibberifrons</i>)	Feb, Mar	Dams		Groups of 3-5
*Blue-winged Shoveller (<i>A. rhynchotis</i>)	Nov	Marradong Creek		Single bird
*Wood Duck (<i>Chenonetta jubata</i>)	Jul, Aug, Sep, Nov	Creeks and dams		Breeding recorded in August 1978
Black-shouldered Kite (<i>Elanus caeruleus</i>)	Sep	Jarrah forest	S	Single bird
Brown Goshawk (<i>Accipiter fasciatus</i>)	Nov	Jarrah forest	S	Single bird
Collared Sparrowhawk (<i>A. cirrocephalus</i>)	Jan	Jarrah forest	S	Single bird
Wedge-tailed Eagle (<i>Aquila audax</i>)	May, Jun	Jarrah forest and farmland	MC	Single birds and pairs common during lambing (May)
*Australian Kestrel (<i>Falco cenchroides</i>)	Feb	Farmland	S	Single bird
Painted button-quail (<i>Turnix varia</i>)	Jun, Nov	Jarrah and wandoo areas	MC	Usually in pairs
*Swamphen (<i>Porphyrio porphyrio</i>)		Marradong Creek		2 recorded in <i>Melaleuca</i> vegetation in 1974
*Coot (<i>Fulica atra</i>)	Feb	Boddington Dam		Single bird
*Black-fronted Plover (<i>Charadrius melanops</i>)	Feb	Boddington dam		Two birds
*Banded Stilt (<i>Cladorhynchus leucocephalus</i>)	Feb	Boddington dam		Single bird
Bush Stone-curlew (<i>Burhinus grallarius</i>)			?S	Calls noted in bush in 1978
*Banded Plover (<i>Vanellus tricolor</i>)	Jun	Farmland		One group of 3
Common Bronzewing (<i>Phaps chalcoptera</i>)	Nov, Feb	Jarrah forest	U	Pairs noted
Ring-necked Parrot (<i>Platycercus zonarius</i>)	Mar, Apr, May, Jun, Aug, Sep, Nov	Jarrah forest, wandoo woodland, farmland	C	Juveniles noted in November. Group sizes up to 10
Red-capped parrot (<i>P. spurius</i>)	Jan, Feb, Mar, Apr, May, Jun, Jul, Sep, Nov	Jarrah forest, wandoo woodland farmland	C	Observed singly, in pairs or small groups of 3-4
Western Rosella (<i>P. icterotis</i>)	Feb, May, Jun, Jul, Aug, Sep, Nov	Jarrah forest, wandoo woodland, farmland	C	Observed singly, in pairs or groups up to 4.
*Elegant Parrot (<i>Neophema elegans</i>)	May, Nov	Farmland	U	pairs and one group of 9.
Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>)	Apr, May, Jun, Aug, Feb	Jarrah forest, Sheak woodland, farmland	C	Groups of up to 30.

<u>Species</u>	<u>Months recorded</u>	<u>Habitat</u>	<u>Abundance</u>	<u>General Information</u>
Red-tailed Black Cockatoo (<i>C. magnifus</i>)	Apr, Nov, Feb	Jarrah forest, Sheoak woodland, farmland	MC	Groups of up to 5.
Pallid Cuckoo (<i>Cuculus pallidus</i>)	Mar, Sep	Jarrah forest	MC	Single birds
Fan-tailed Cuckoo (<i>C. flabelliformis</i>)	Aug, Sep, Oct	Jarrah forest and farmland	MC	Single birds
Horsfield's Bronze Cuckoo (<i>Chrysococcyx basalis</i>)	Sep, Oct	Jarrah forest, farmland	U	Single Bird
Shining Bronze Cuckoo (<i>C. lucidus</i>)	Nov	Jarrah forest	S	Single bird
Boobook Owl (<i>Ninox novaeseelandiae</i>)	Jun, Aug	Jarrah forest	U	One bird observed and calls noted at various times.
*Tawny Frogmouth (<i>Podargus strigoides</i>)				Recorded near Boddington by Or A. Burbidge. Dept. Fisheries & Wildlife (pers.comm.).
Laughing Kookaburra (<i>Dacelo gigas</i>)	Mar, May, Jun, Nov	Jarrah forest farmland	C	Single birds or pairs.
Rainbow Bee-eater (<i>Merops ornatus</i>)	Feb	Jarrah forest	U	One group of 10 birds.
Welcome Swallow (<i>Hirundo neoxena</i>)	Nov	Jarrah forest farmland	U	Groups of up to 10 birds.
Tree Martin (<i>H. nigricans</i>)	Nov	Jarrah & wandoo forest, farmland	MC	Groups of up to 7 birds.
*Richard's Pipit (<i>Anthus novaeseelandiae</i>)	May, Jul, Aug	Farmland	MC	Single birds.
Black-faced Cuckoo-shrike (<i>Coracina novaehollandiae</i>)	Jan, Feb, Mar Jun, Sep, Nov	Jarrah forest, Sheoak woodland	MC	Single or in pairs.
White-winged Triller (<i>Lalage sueurii</i>)	Sep	Jarrah forest	S	One group of 3 birds.
Scarlet Robin (<i>Petroica multicolor</i>)	Mar, Apr, May Jun, Jul, Aug, Sep, Nov	Jarrah forest, wandoo woodland farmland	C	Singly, in pairs or groups of 3.
Yellow Robin (<i>Eopsaltria australis</i>)	Feb, Mar, May Jun, Jul, Sep, Nov	Jarrah forest	C	Singly, in pairs or groups of 3.
Golden Whistler (<i>Pachycephala pectoralis</i>)	Feb, Mar, Apr May, Jun, Jul, Sep, Nov	Jarrah forest, Sheoak woodland, farmland	C	Singly or in pairs
Rufous Whistler (<i>P. rufiventris</i>)	Feb, Apr, Jun, Jul, Sep, Nov	Jarrah forest, farmland	C	Singly or in pairs.
Grey Shrike-thrush (<i>Colluricincla harmonica</i>)	Feb, Jun, Sep	Jarrah forest	MC	Single birds & one bird observed feeding fledgling mid-February 1980. Singly or in pairs.
Grey Fantail (<i>Rhipidura fuliginosa</i>)	All months	Jarrah forest, Sheoak and wandoo woodland, farmland	C	
Willie Wagtail (<i>R. leucophrys</i>)	Jan, Mar, Jul, Aug, Sep, Nov	Jarrah forest, farmland	MC	Usually single birds recorded.
Restless Flycatcher (<i>Myiagra inquieta</i>)	Apr, May, Jun, Nov	Jarrah forest	MC	Single birds.
Western Flyeater (<i>Gerygone fusca</i>)	Feb, Aug, Sep, Nov	Jarrah forest	C	Single birds.
Weebill (<i>Smicronnis brevirostris</i>)	Feb, May, Jun, Nov	Jarrah forest Sheoak & wandoo woodland, farmland	MC	Small groups of up to 6 birds
Broad-tailed Thornbill (<i>Acanthiza apicalis</i>)	Feb, Jun, Jul, Aug, Sep, Nov	Jarrah forest, farmland	MC	Small groups of up to 5 birds.
Western Thornbill (<i>A. inornata</i>)	Feb, Jul, Sep	Jarrah forest	MC	Small groups of up to 5 birds.
Yellow-rumped Thornbill (<i>A. chrysorrhoa</i>)	Feb, Apr, May, Jul, Aug, Sep, Nov	Farmland & Jarrah forest	C	Usually groups of 3-4 birds.
White-browed Scrub-wren (<i>Sericornis frontalis</i>)	Feb	Heath	S	Only 2 birds recorded.
Splendid Fairy-wren (<i>Malurus splendens</i>)	Feb, Apr, May, Jun, Jul, Aug, Sep, Nov	Farmland (near stream), heath, Jarrah forest	C	Family groups of one male & several females (and possibly juveniles).
Australian Sittella (<i>Daphoenositta chrysoptera</i>)	Feb, Mar, Sep, Nov	Jarrah forest, wandoo woodland	MC	Groups of 3-4 birds.
Rufous Treecreeper (<i>Climacteris rufa</i>)	Mar, Jun, Jul, Aug, Nov	Jarrah forest	C	Single birds or in pairs.

Species	Months recorded	Habitat	Abundance	General Information
Mistletoe Bird (<i>Dicaeum hirundinaceum</i>)	Jan	Jarrah forest	S	Only one bird sighted.
Spotted Pardalote (<i>Pardalotus punctatus</i>)	Nov	Jarrah forest	S	Only one bird sighted.
Striated Pardalote (<i>P. striatus</i>)	Feb, Jul, Nov	Farmland, Jarrah forest, Sheoak woodland	C	Single birds or in pairs.
Grey-breasted White-eye (<i>Zosterops lateralis</i>)	Jan, Mar, Apr, Jun, Jul, Aug, Sep, Nov	Jarrah forest, farmland	C	Groups of up to 10 birds.
Brown Honeyeater (<i>Lichmera indistincta</i>)	Apr, Jun, Jul, Sep, Nov	Jarrah forest	C	Groups of up to 10 birds, feeding on <i>Dryandra sessilis</i> , <i>Banksia grandis</i> & <i>Eucalyptus calophylla</i> .
Singing Honeyeater (<i>Meliphaga virescens</i>)	Feb, May, Jul, Aug	Jarrah forest, farmland	MC	Small groups of up to 4 birds.
Yellow-plumed Honeyeater (<i>M. ornata</i>)	Apr, Jun	Wandoo woodland	U	Two pairs recorded.
Brown-headed Honeyeater (<i>Melithreptus brevirostris</i>)	Sep	Jarrah forest	S	One bird noted feeding in <i>Eucalyptus calophylla</i> .
White-naped Honeyeater (<i>M. lunatus</i>)	Feb, Apr, May	Jarrah forest	MC	Single birds or pairs.
New Holland Honeyeater (<i>Phylidonyris novaehollandiae</i>)	Feb, Apr, Jun, Sep	Jarrah forest, heath	MC	Single birds or pairs observed feeding on <i>Banksia grandis</i> or <i>E. calophylla</i> .
White-cheeked Honeyeater (<i>Phylidonyris nigra</i>)	Mar, Jun, Nov	Jarrah forest, heath	U	Single birds or in pairs.
Western Spinebill (<i>Acanthorhynchus superciliosus</i>)	Mar, Apr, May, Jun, Jul, Sep, Nov	Jarrah forest, heath	C	Groups of up to 4 birds feeding on <i>Dryandra sessilis</i> , <i>D. carduaceae</i> and <i>Petrophile</i> sp.
Little Wattlebird (<i>Anthochaera chrysoptera</i>)	Apr, May, Jun, Jul, Sep, Nov	Jarrah forest	MC	Pairs observed feeding on Marri and <i>D. sessilis</i> .
Red Wattlebird (<i>A. carunculata</i>)	Feb, Aug	Jarrah forest	MC	Single birds or pairs observed feeding on Marri and <i>D. sessilis</i> .
*Magpie Lark (<i>Grallina cyanoleuca</i>)	Apr, Jun, Nov	Farmland	MC	Single birds or pairs.
Black-faced Woodswallow (<i>Artamus cinereus</i>)	Feb	Jarrah forest	S	One bird recorded
Dusky Woodswallow (<i>A. cyanopterus</i>)	Mar, Jun, Nov	Jarrah forest	MC	Groups of 3-4 birds noted
Pied Butcherbird (<i>Cracticus nigrogularis</i>)	Sep	Jarrah forest	S	Single bird observed.
Australian Magpie (<i>C. tibicen</i>)	Feb, Apr, Jun, Aug, Sep, Nov	Farmland, Jarrah forest	MC	Groups of up to 6 birds.
Grey Currawong (<i>Strepera versicolor</i>)	Feb, Mar	Jarrah forest	U	Single birds.
Australian Raven (<i>Corvus coronoides</i>)	Mar, Apr, May, Jun, Jul, Aug, Sep, Nov	Jarrah forest, farmland	C	Groups of up to 10 individuals.

DISCUSSION

A total of 21 reptile species, 81 bird species and 14 mammal species was recorded in the Mount Saddleback area. In terms of species numbers, the area appears comparable to the Yornaning Nature Reserve, one of the closest wheatbelt reserves situated approximately 100 km east. In a survey of the latter, 18 reptile species (Dell & Harold, 1979), 67 bird species (Harold & Dell, 1979) and 12 mammal species (Morris & Kitchener, 1979) were recorded.

Of the 21 species of reptiles recorded in the Mount Saddleback area, nine have also been recorded at Yornaning Nature Reserve (Dell & Harold, 1979) and seventeen were recorded at Dongolocking Nature Reserve (Chapman & Dell, 1978). Those species not recorded at either of the latter two wheatbelt reserves are *Ctenotus labillardieri*, *Egernia napoleonis*, *Hemiernis initialis initialis*, *Chelodina oblonga*, *Python spilotos*, and *Notechis scutatus*.

Several of these e.g. *Hemiernis initialis initialis*, *Notechis scutatus* and *Chelodina oblonga* are distributed only within the south-western corner of the state (Storr, 1975 and Cogger, 1979) and their absence from Yornaning and Dongolocking Nature Reserves may be expected on this basis. The absence

from the State Forest of several other reptile species expected to occur in the Mount Saddleback area may be due to a lack of suitable habitat and the fact that no streams or associated stream-zone vegetation occur within the State Forest itself. This probably explains the absence of *Notechis scutatus* and *Egernis luctuosa*, species associated with stream-zone vegetation (Christensen, 1973, and pers. obs.).

Of particular interest in the present survey was the *Pseudonaja* specimen which may have been a hybrid between the Dugite, *P. affinis* and the Gardar, *P. nuchalis*. Cogger's (1979) distribution map indicates that the Mount Saddleback area is clearly outside the range of *P. nuchalis* and it thus appears that individuals exhibiting *P. nuchalis* colouration have either always occurred within the jarrah forest and have not previously been recorded in that habitat, or they are extending their range in a south-westerly direction. Whatever the case, the specimen collected indicates that along a zone of contact the two *Pseudonaja* species either hybridise, or environmental influences result in some *P. affinis* individuals possessing *P. nuchalis* colouration.

The reptile species recorded at Saddleback thus show elements characteristic of both the jarrah forest (e.g. *Hemiergis initialis initialis*) and more inland areas (e.g. the *Pseudonaja nuchalis* x *affinis* 'hybrid').

Eighty-one bird species were recorded in the present survey, while 61 were found to occur within the Saddleback State Forest. The latter number corresponds favourably with the 55 bird species recorded in jarrah forest growing on gravel soils at Dwellingup by Kimber (1972).

Of the 61 species recorded in the Saddleback forest, six which were also recorded at Dwellingup (Kimber, 1972) were not found at Yornaning or Dongolocking Nature Reserves (Harold & Dell, 1979 and Dell, 1978). These species include the Red-capped Parrot, Splendid Fairy-wren, Spotted Pardalote and White-naped Honeyeater, all of which are more characteristic of the south-western jarrah forest and are not commonly found further inland (Serventy & Whittell, 1976). In contrast, seven bird species were found in the same surveys at Yornaning, Dongolocking and Saddleback but not at Dwellingup. These included the Singing Honeyeater, White-cheeked Honeyeater and Black-faced Woodswallow - all species which tend to avoid the jarrah forest (Serventy & Whittell, 1976).

The avifauna of the Saddleback State Forest thus exhibits a species composition intermediate to that of the jarrah forest and more inland areas. This is probably due to the transitional type vegetation present in the Saddleback area.

Likewise past logging and burning programmes, although not intensive, may have increased the area of open, sub-climax forest and contributed to the transitional avifauna.

Seventeen native mammal species were recorded in the Mount Saddleback area, and one of these, the Brush-tailed Phascogale (*Phascogale tapoatafa*) has not recently been recorded in the area and may no longer occur there. The species appears to be uncommon and was not recorded at either Yornaning or Dongolocking (Morris & Kitchener, 1979 and Kitchener & Chapman, 1978). The record of the Native Cat (*Dasyurus geoffroii*), a species on the state's rare fauna list, is also noteworthy. Likewise it would be interesting if the Forest Department records of signs of the Numbat (*Myrmecobius fasciatus*) and the Short-nosed Bandicoot (*Isodon obesulus*) could be confirmed by actual sightings, particularly since the Numbat, like the Phascogale, is becoming uncommon.

Species such as the Tammar (*Macropus eugenii*) depend on particular seral stages (Christensen, 1974) and their absence may be explained by a lack of suitable habitat. As was the case with birds and reptile species, the virtual absence of stream zone vegetation and thick ground cover from the Mount Saddleback State Forest probably explains the absence of certain species such as the Quokka (*Setonix brachyurus*).

Generally there appears to be a paucity of small native mammal species in the Saddleback State Forest. In the present survey, 165 trap nights produced only feral mice, while in 1972 the Forest Department trapping programme likewise revealed only mice from 834 trap nights in wandoo, jarrah and heath areas (M. Mason, pers. comm.).

Because of the comparative rarity of the Carpet Snake, Native Cat, Phascogale

and Numbat and the observation or possibility that they occur in the Mount Saddleback area, future land use or management programmes (e.g. burning, logging and bauxite mining) may need to take the requirements of these species and the effect operations have on them into account. Both the Phascogale and the Short-nosed Bandicoot are mentioned as being unlikely to inhabit the area by Worsley (Bauxite mining) Environmental Review and Management Programme (1978).

In conclusion, the present survey indicates that the Mount Saddleback State forest possesses several features which are of value to the fauna of the northern Jarrah Forest.

These are:

- (a) the small incidence of jarrah dieback disease (*Phytophthora cinnamomi*). widespread dieback in the area would reduce the large number of *Banksia grandis* and probably have a detrimental effect on the 10 honeyeater species present.
- (b) its relatively large area (5619 ha). It is comparable in size with several conservation Management Priority Areas in lower rainfall areas e.g. Stene (4487 ha) and Bennelaking (5635 ha) (Hedde *et al.*, 1980).
- (c) a vegetation intermediate to that of the jarrah forest and the drier wandoo/*Allocasuarina huegeliana* woodlands of more inland areas. This results in a fauna (avian in particular) intermediate to that of both vegetation types.

The species richness of the area is however somewhat reduced by the lack of streams, free water and thick undergrowth. Also although a good number of mammal species was recorded in the area, feral mammals such as mice, cats and foxes appear to be well established and, with the exception of the Grey Kangaroos and Brush Wallabies, there is a notable paucity of native mammals.

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FROM FIELD AND STUDY

Spotted harrier: a new record for Rottnest Island — On June 15, 1983, we saw an adult Spotted harrier *Circus assimilis* drifting across heathland near the Cathedral Rocks lookout at the west end of the island. The bird moved westward, following the contours of the dunes and heathlands in characteristic flight, and was last seen flying eastward towards Radar Reef.

On the following day Mr. Ian White, the resident lighthouse keeper, reported that he had seen what he believed was a Spotted harrier in the vicinity of the lighthouse on Wadjemup Hill. The single bird was seen 6 times on the following dates: 22,23 January 1983; some time before and including 28 March 1983; 11 May 1983 and 18 May 1983.

Serventy (1976) considers the Spotted harrier to be essentially an arid-country bird that periodically strays onto the coastal plain of south Western Australia. Milhinch and Ritcher (1979) found this species breeding in the Northam district in 1978, but the birds appeared to have deserted the area by January 1979.

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